AMENDMENTS OT THE SPECIFICATION:

Please substitute the following amended paragraph for the paragraph beginning on page 2, line 3:

In the prior art, such hemming has often been accomplished in two separate stages often using two sets of dies mounted in two successive presses. The inner reinforcing panel is nested within the unitary outer panel which is fixtured on an anvil die on a base of a prehemming machine. Upon fixturing the assembly, a tool of the machine, commonly referred to as a hem or hemming ~~steel~~ blade (also referred to herein as a hem or hemming tool or die), engages and bends an edge of the outer panel to an acute included angle with respect to the outer panel. Prehemming is sometimes referred to as "fortyfive-ing" because the angle of the flange becomes about forty-five degrees with respect to the general plane of the outer panel. After prehemming all edges to be joined, both panels are released, transferred to, and fixtured in a second hemming machine where a second ~~steel~~ hemming blade completely bends the prehemmed edge of the outer panel over the peripheral edge of the reinforcing panel to secure and attach the panels together as a unitary structural member for assembly on a vehicle. This second stage is often referred to as full-hemming.

Please substitute the following amended paragraph for the paragraph beginning on page 3, line 8:

One group includes machines having linkage driven ~~steels~~ hemming blades, machines having one rotary ~~steel~~ hemming blade driven by another linear driven ~~steel~~ hemming blade, and machines having one ~~steel~~ hemming blade telescopingly hem from within the prehemming ~~steel~~ hemming blade. Representative of this group are the following patents: U.S. Patent No. 1,693,643 to D'Ardenne, U.S. Patent No. 5,404,742 to Wilson et al, and U.S. Patent No. 3,903,934 to Vizy.

Please substitute the following amended paragraph for the paragraph beginning on page 3, line 16:

Another group includes machines having ~~steels~~ hemming blades that traverse generally linearly in one or two directions. ~~hemming~~ Hemming machines of this type, such as U.S. Patent No. 3,143,095 to Tribe, may have a prehemming ~~steel~~ hemming blade traversing across the general plane of the outer skin and a fullhemming ~~steel~~ hemming blade traveling perpendicular to the plane of the outer skin. The obvious disadvantage of this type of machine is that it requires two ~~steels~~ hemming blades or dies, two directions of travel, extra cycle time for two operations, and a substantial amount of space around the assembly which prevents the hemming of internal edges. Alternatively, machines, such as U.S. Patent No. 5,315,855 to Jackson, use a single ~~steel~~ hemming blade traversing in only the plane of the outer skin have been disclosed but still require a substantial amount of space preventing internal hemming and often result in a hem that is not firm, out of tolerance, and of low visual quality. Finally, there are machines, such as U.S. Patent No. 1,961,582 to Eksergian, that travel only perpendicular to the general plane of the outer skin but still require substantial space around the assembly, two ~~steels~~ hemming blades, and do not create a quality hem.

Please substitute the following amended paragraph for the paragraph beginning on page 4, line 9:

In accordance with the present invention, an improved apparatus and method for prehemming and hemming is provided for minimizing the above-referenced and other disadvantages of the prior art, and in particular, for folding an edge portion of a curved arcuate panel to create a hem in a single cycle of operation with a single hemming swing ~~steel~~ hemming blade pressed only in the vertical direction.

Please substitute the following amended paragraph for the paragraph beginning on page 4, line 16:

In accordance with one aspect of the present invention, a hemming apparatus for hemming an outer skin and inner panel together is provided. The apparatus includes an anvil for supporting an associated assembly. The assembly comprising the outer skin and the inner panel. The apparatus additionally includes an upper body and a ~~steel~~ hemming blade mounted to the upper body. The ~~steel~~ hemming blade is adapted for movement between first and second operative positions. Furthermore, the ~~steel~~ hemming blade has a first angled surface for prehemming the assembly when the ~~steel~~ hemming blade is in the first operative position and a second angled surface for full-hemming the assembly when the ~~steel~~ hemming blade is in the second operative position.

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Please substitute the following amended paragraph for the paragraph beginning on page 4, line 29:

In accordance with another aspect of the present invention, a method for hemming an outer skin and inner panel together is provided. It includes placing an assembly on a supporting surface of an anvil. The assembly comprising an inner panel positioned on an outer skin where the inner panel has a peripheral edge and the outer skin has a peripheral flange. It next includes moving a hemming ~~steel~~ blade, while in a first operative position, in a first direction into the peripheral flange of the outer skin so that an angled prehemming surface of the ~~steel~~ hemming blade deforms the flange toward the inner panel thereby prehemming the assembly. The hemming ~~steel~~ blade is further moved in the first direction moving the hemming ~~steel~~ blade into a second operative position. Meanwhile, the ~~steel~~ hemming blade moves into the deformed peripheral flange so that a hemming surface of the ~~steel~~ hemming blade engages the deformed flange and moves it into close contact with the inner panel thereby full-

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A6 hemming the assembly. Finally, the ~~steel~~ hemming blade is moved away from the hemmed assembly and removing the finished assembly from the supporting surface.

Please substitute the following amended paragraph for the paragraph beginning on page 5, line 18:

A7 One advantage of the present invention is the provision of a hemming apparatus that requires only one ~~steel~~ hemming blade reducing the construction costs of the machine and the maintenance costs of the ~~steel~~ hemming blade.

Please substitute the following amended paragraph for the paragraph beginning on page 5, line 22:

A8 Another advantage of the present invention is the provision of a hemming apparatus that substantially reduces the risk of the die "smashing" because the machine will only use one ~~steel~~ hemming blade to contact the peripheral edge of the assembly.

Please substitute the following amended paragraph for the paragraph beginning on page 7, line 10:

A9 **FIG. 3** is a diagrammatic side view of a prior art two-~~steel~~ surface, two-directional hemming apparatus and its related compression forces;

Please substitute the following amended paragraph for the paragraph beginning on page 7, line 16:

A10 **FIG. 5** is a diagrammatic view of an alternate embodiment of a ~~steel~~ hemming blade in accordance with aspects of the present invention;

Please substitute the following amended paragraph for the paragraph beginning on page 7, line 22:

A11 **FIG. 6b** is a diagrammatic view of the hemming apparatus shown in FIG. 6a showing the ~~steel~~ hemming blade in a first position prehemming an assembly; and

Please substitute the following amended paragraph for the paragraph beginning on page 7, line 25:

A12 **FIG. 6c** is a diagrammatic view of the hemming apparatus shown in FIG. 6a showing the ~~steel~~ hemming blade in a second position full-hemming the assembly.

Please substitute the following amended paragraph for the paragraph beginning on page 9, line 28:

A13 The hemming apparatus 15 additionally includes an upper body 27 as either a connected or separate component. The upper body 27 is mounted to a vertical press (not shown) as is well known. The upper body 27 holds the swing tool or ~~steel~~ hemming blade 28 formed in accordance with the present invention by means of a screw 30 or the like. ~~Steel~~ Hemming blade 28 is constructed of a suitable material with an appropriate hardness as is well known. The ~~steel~~ hemming blade 28 has a round or rounded upper surface 32 which nestles inside a curved recess 34 of the upper body 27 such that the ~~steel~~ hemming blade 28 may pivot outward from the upper body 27. An inner side 36 of the ~~steel~~ hemming blade 28 rests against the keeper or extended portion 38 of the upper body 27. The outer or exposed side 40 is open and held in place by a spring 42 or other biasing means. The spring 42 is a blue medium duty die spring with a strength of 216 lbs. in the preferred embodiment. Of course, other suitable springs may be used.

Please substitute the following amended paragraph for the paragraph beginning on page 10, line 14:

The bottom surface of the ~~steel~~ hemming blade 26 has two angled surfaces 50 and 52 defined at angles α and ß, respectively. Angles α and ß are relative to respective planes positioned parallel to the supporting surface 22. The prehemming angled surface 52, extends from the bottom open edge 44 of the ~~steel~~ hemming blade 28 inward and upward to the approximate center 46 of the ~~steel~~ hemming blade 28 at an angle α which is equal to that of the sloped side 26 of the anvil 20. Full-hemming angled surface 50 extends from the closed, bottom edge 48 of the ~~steel~~ hemming blade 28 inward and downward at angle ß to the approximate center 46 of the ~~steel~~ hemming blade 28 meeting prehemming angled surface 52. The magnitude of angle ß is such that when the ~~steel~~ hemming blade 28 is forced vertically downward to its farthest position at which point the ~~steel~~ hemming blade 28 is pivoting against the spring 42, angled surface 50 will rest parallel to the supporting surface 22 of the anvil 20.

Please substitute the following amended paragraph for the paragraph beginning on page 10, line 30:

In operation, the upper body 27 moves the ~~steel~~ hemming blade 28 downward in a first operative position to contact the peripheral flange 12a of the outer skin 12 and the sloping side 26 of the anvil 20. The upper body 27 is powered by a vertical press as is well known but other suitable driving means may be employed. When the ~~steel~~ hemming blade 28 first contacts the peripheral flange 12a, the flange 12a will bend inward toward the inner panel 14 until the prehemming angled surface 52 of the ~~steel~~ hemming blade 28 contacts the sloping side 26 of the anvil 20. At this point, the ~~steel~~ hemming blade is still in the first operative position and the bend in the peripheral flange 12a is at angle α relative to the supporting surface 22 of the anvil 20. Thus, the prehemming of the peripheral flange 12a to the inner panel 14 is complete.

Please substitute the following amended paragraph for the paragraph beginning on page 11, line 13:

As the upper body 27 continues to move the ~~steel~~ hemming blade 28 downward, i.e., toward the anvil support surface 22 and a second operative position, the ~~steel~~ hemming blade 28 is forced to pivot from the upper body 27 at the screw 30 against the force of the spring 42 owing to the prehemming surface 52 of the ~~steel~~ hemming blade 28 slidably engaging the sloping side 26 of the anvil 20. The stiffness of the spring 42 is such that ~~steel~~ hemming blade 28 is generally secured against upper body 27, including during the prehemming operation, but gives appropriately when the ~~steel~~ hemming blade 28 is forced to pivot against sloping side 26 of the anvil 20. The ~~steel~~ hemming blade 28 will continue pivoting and moving downward until the full-hemming angled surface 50 is substantially parallel to the supporting surface 22 of the anvil 20. At this point, the ~~steel~~ hemming blade is in the second operative position and the peripheral flange 12a of the outer panel 12 and the inner panel 14 are completely hemmed.

Please substitute the following amended paragraph for the paragraph beginning on page 11, line 30:

In a preferred embodiment, the peripheral flange 12a will be arranged at about ninety degrees with respect to its initial position so that it is superimposed and pressed against the peripheral edge 14a. The upper body 27 is then retracted upwards, moving the ~~steel~~ hemming blade 28 upward and away from the hemmed outer skin 12 and inner panel 14. Of course, the spring 42 or other biasing means moves the ~~steel~~ hemming blade 28 to its home or first operative position illustrated in FIG. 2. The outer skin 12 and inner panel 14 together form a complete hemmed assembly 10 which may now be removed from the anvil 20. Thus, the apparatus 15 will have only used one cycle of a vertical press to complete both the prehemming and full-hemming operations. Several ~~steels~~ hemming blades 28 may be employed simultaneously and powered by a single

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vertical press. In such an arrangement, several hems are completed upon one stroke of the vertical press.

Please substitute the following amended paragraph for the paragraph beginning on page 12, line 16:

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An important aspect of the present invention relates to its ability to substantially reduce undesirable compression forces typically exerted on the peripheral flange 12a in prior art hemming machines. Referring to FIG. 3, previously known devices often use a two-~~steel~~ hemming blade, two-stage process or other similar process to hem the outer skin 12 to the inner panel 14. Prehemming is accomplished when a horizontal ~~steel~~ hemming blade 54 moves toward the assembly 10 and engages the peripheral flange 12a. Horizontal ~~steel~~ hemming blade 54 continues and forces peripheral flange 12a to bend inward toward supporting surface 22 of the anvil 20 until horizontal ~~steel~~ hemming blade surface 54a meets sloping surface 26.

Please substitute the following amended paragraph for the paragraph beginning on page 12, line 28:

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Such a prehemming process is problematic because horizontal ~~steel~~ hemming blade 54 begins forcing peripheral flange 12a to bend against the peripheral edge 14a. Thus, the skin 12 exerts a force on the panel 14 during the bending. Between the force of horizontal ~~steel~~ hemming blade 54 and the immobile resistance of anvil 20, this force causes either the outer skin 12 or the inner panel 14 to buckle producing an undesirable and rough finish. The vertical ~~steel~~ hemming blade 56 completes the hem by full-hemming the peripheral flange 12a to the peripheral edge 14a but the unsightly buckle remains in the outer skin 12 or the inner panel 14.

Please substitute the following amended paragraph for the paragraph beginning on page 13, line 7:

Referring to FIG. 4, the present invention uses only vertical motion to complete the hemming operation in contrast to the prior art. The upper body 27 moves the ~~steel~~ hemming blade 28 downward toward the peripheral flange 12a. When the tool 28 engages the peripheral flange 12a and begins bending the peripheral flange 12a inward and downward toward the supporting surface 22 of the anvil 20, the force C applied to the peripheral flange 12a is substantially downward. The buckling problem of the prior art is absent because the peripheral flange 12a is allowed to move out toward the slope side 26 of the anvil 20. Thus, the finished hem has a desirable finish without any unsightly buckles.

Please substitute the following amended paragraph for the paragraph beginning on page 13, line 26:

Alternately, with additional reference to FIG. 5, the ~~steel~~ hemming blade 28 may include an indented radius 60 located along the intersecting edge between the full-hemming angled surface 50 and prehemming angled surface 52. The radius 60 provides clearance between the ~~steel~~ hemming blade 28 and the assembly 10 during the movement of the ~~steel~~ hemming blade 28 from the first operative position where prehemming occurs and the second operative position where full-hemming occurs. Such clearance decreases the likelihood of the ~~steel~~ hemming blade 28 damaging the peripheral flange 12a and edge 14a during the transition between the two positions.

Please substitute the following amended paragraph for the paragraph beginning on page 14, line 21:

The hemming apparatus 100 includes an upper body 27. The upper body 27 is mounted to vertical press by means of a die shoe and a machine ~~steel~~ hemming blade

sub plate as is well known. The upper body 27 holds a ~~steel~~ hemming blade 28 formed in accordance with the present invention. The ~~steel~~ hemming blade 28 has a rounded upper surface 32 which nestles inside a curved recess 34 of the upper body 27. An inner side 36 of the ~~steel~~ hemming blade 28 rests against an extended portion 38 of the upper body 27.

Please substitute the following amended paragraph for the paragraph beginning on page 14, line 30:

The apparatus 100 additionally includes a spring housing 104 that encloses a medium or heavy duty die spring 42. The housing 104 is adapted to receive a preload spacer 106 at a distal end of the spring 42 and includes a spring cap 108 for forcing the spring 42 against the ~~steel~~ hemming blade 28. The preload spacer 106 may vary and serves the purpose of allowing for variable adjustment of the resistance of the spring 42. A plurality of roller bearings 110 are also provided and secured to the ~~steel~~ hemming blade 28 by a connecting means 111. Roller bearings 110 engage a cam 114 mounted to the anvil 20 upon actuation and movement of the vertical press toward the anvil 20 so that roller bearings 110 travel on the cam 114 and move the ~~steel~~ hemming blade 28 into its second operative position. The ~~steel~~ hemming blade 28 is shown in a first position prior to actuation and movement by the vertical press.

Please substitute the following amended paragraph for the paragraph beginning on page 15, line 14:

Similar to the first preferred embodiment, the ~~steel~~ hemming blade 28 has two angled surfaces, a prehemming surface 52 and a full-hemming surface 50. The respective angles of the surfaces 50 and 52 are calculated as described above. The prehemming surface 52 is at an angle approximately equal to that of the sloping side 26 and the hemming surface 50 is at an angle adapted to provide a full hem upon pivotal movement of the ~~steel~~ hemming blade 28.

Please substitute the following amended paragraph for the paragraph beginning on page 15, line 22:

In operation, the upper body 27, powered by the vertical press, moves the ~~steel~~ hemming blade 28 toward the peripheral flange 12a of the outer skin 12. The ~~steel~~ hemming blade 28 is initially in a first or resting position, i.e., the ~~steel~~ hemming blade 28 is urged against the extended portion 38 by the spring 42. The ~~steel~~ hemming blade 28 will contact and bend the peripheral flange 12a inward toward the inner panel 14 until the roller bearings 110 engage the cam 114. With reference to FIG. 6b, the bend in the peripheral flange 12a is at an angle approximately equal to the sloping side 26 of the anvil 20 and the roller bearings 110 are fully engaged with the cam 114. Thus, the prehemming of the peripheral flange 12a is complete. At this point, the engagement between the roller bearings 110 and the cam 114 prevent the prehemming surface 52 of the ~~steel~~ hemming blade 28 from moving any further into the peripheral flange.

Please substitute the following amended paragraph for the paragraph beginning on page 16, line 7:

Further movement by the vertical press forces the ~~steel~~ hemming blade 28 to pivot against the spring 42. The roller bearings 110 move along the cam 114 and the ~~steel~~ hemming blade 28 pivots from a first position to a second position. During the transition from the first position to the second position, the full-hemming surface 50 of the ~~steel~~ hemming blade 28 engages and moves the peripheral flange 12a of the outer skin 12. The full-hemming surface 50 continues to bend the peripheral flange 12a toward the inner panel 14 until the flange 12a is superimposed and pressed against the peripheral edge 14a of the inner panel 14. At this point the ~~steel~~ hemming blade 28 is in its second operative position and the assembly is fully hemmed (FIG. 6c). As in a previous embodiment, the vertical press may be reversed to remove the ~~steel~~ hemming

a26 blade 28 from the hemmed assembly 10 and the hemmed assembly 10 may be removed.